

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT:	Hak-Sun CHANG, et al.) Group Art:
) 2871
SERIAL NO.	10/810,887)
) Examiner:
DATE FILED:	March 29, 2004) VU, Phu
)
FOR:	LIQUID CRYSTAL DISPLAY) Confirmation No.
) 1078

PRE-APPEAL BRIEF REQUEST FOR REVIEW

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In response to the Final Office Action mailed October 5, 2006, and in conjunction with the Notice of Appeal filed concurrently herewith, the Applicants submit the following remarks in support of the Pre-Appeal Brief Request for Review:

REMARKS

The present submission is responsive to the Final Office Action of October 5, 2006, in which claims 1-27 are presently pending.

Claims 1, 2, 5-7, and 10

The Examiner has rejected claims 1, 2, 5-7 and 10 under 35 U.S.C. § 103(a) as being unpatentable over Yamakita et al. (U.S. Patent No. 6,661,491, hereinafter "Yamakita") in view of Sato (U.S. Patent No. 4,987,012, hereinafter "Sato"). The Examiner states that Yamakita et al. teach all elements of the abovementioned claims, except the spacers being black of claims 1 and 6, which the Examiner further states are taught primarily at column 4, lines 22-25 of Sato. Applicants traverse the rejection with respect to these claims.

Yamakita is directed to a liquid crystal display. Yamakita discloses a liquid crystal display with a common electrode 2, a liquid crystal layer 4 injected between upper and lower substrates 3 and 5, and an element labeled 61 which is not mentioned in the detailed description. (See FIGS. 3, 4a, 4b and 24 and column 19 line 45 through column 20 line 38). The element 61 appears in a cross-sectional view schematically showing main elements of a semiconductor switching device (TFT) portion of a liquid crystal display panel. (See column 19 lines 45-50).

Claim 1 of the present application, as amended, recites: "A liquid crystal display, comprising . . . spacers in a pixel region determining a gap between the upper and lower substrates; wherein liquid crystal molecules on both substrates are aligned antiparallel to each other, and the color of the spacers is black." (Emphasis added.)

Independent claim 1 of the present application patentably distinguishes over the combination of Yamakita and Sato for at least the foregoing reasons. Although Yamakita discloses an OCB mode LCD, the Examiner admits that Yamakita fails to teach black spacers. However, the Examiner alleges that Sato teaches black spacers and that it would have been obvious to apply black spacers in the Yamakita.

In an OCB mode LCD, retardation films are used to enhance darkness in the black state. However, a complete black cannot be achieved due to light leakage around the spacers. In the present invention, darkness of the black state of an OCB mode LCD is enhanced by using the black spacers. Claim 1 identifies the LCD as an OCB mode LCD by reciting "wherein liquid crystal molecules on both substrates are aligned antiparallel to each other", as described in paragraph [0042] of the specification as originally filed.

Sato discloses black spacers and Yamakita discloses an OCB mode LCD, but Sato and Yamakita do not disclose any teaching or suggestion about the use of black spacers in an OCB mode LCD. Therefore, it is respectfully submitted that any combination of Sato and Yamakita is an improper hindsight combination coached by the present invention.

Sato merely discloses that black particles may be formed by heat treating formed white particles and that both the white and black particles are particularly useful products as spacers for liquid crystal display devices. (See Abstract of Sato). There is no teaching, suggestion, or motivation in Sato to use a black spacer over a white spacer in an LCD display device, and certainly no teaching or suggestion to use a black spacer in an OCB mode LCD. Further, it is respectfully noted that Yamakita merely discloses a spacer (61) in FIG. 24 and does not teach or suggest any color thereof. Thus, it is respectfully submitted that the only basis for the motivation relied upon by the Examiner is in Applicants' disclosure, and that such motivation is not so common or well known in the art that the Examiner is entitled to opine that any person having ordinary skill in the art would have appreciated it.

Therefore, for at least the reasons discussed above, independent claims 1 and 6 of the present application patentably distinguish over the combination of Yamakita and Sato. Accordingly, it is respectfully requested that the rejection of independent claims 1 and 6 be withdrawn.

Claims 2 and 5 depend from independent claim 1 while claims 7 and 10 depend from independent claim 6 and are patentable for at least the reasons discussed above. Accordingly, it is respectfully requested that the rejections of claims 2, 5, 7 and 10 be withdrawn.

Claims 3-4, 8-9

On pages 5 and 6 of the Office action, the Examiner has also rejected claims 3, 4, 8 and 9 under 35 U.S.C. § 103(a) as being unpatentable over Yamakita in view of Sato and further in view of Motomura (U.S. Patent No. 6,103,323). The Examiner states that Yamakita and Sato disclose all elements of the abovementioned claims, except that the slow axis compensation film is not parallel to the transmittance axis of the polarizer of claims 3, 4, 8, and 9, which the Examiner further states is taught in Motomura at column 15, lines 10-15. Applicants traverse the rejection with respect to these claims.

Claims 3 and 4 depend from independent claim 1 and are patentable for at least the reasons discussed above that independent claim 1 patentably distinguishes over the references relied upon by the Examiner. Motomura does not cure the deficiencies noted above with respect to Yamakita and Sato; more particularly, Motomura does not teach, suggest or disclose **a liquid crystal display, comprising . . . spacers positioned between the upper substrate and the lower substrate, the spacers in a pixel region determining a gap between the upper and lower substrates; wherein liquid crystal molecules on both substrates are aligned antiparallel to each other, and the color of the spacers is black**. Accordingly, it is respectfully requested that the rejections of claim 3 and 4 be withdrawn.

Claims 8 and 9 depend from independent claim 6 and are patentable for at least the reasons discussed above that independent claim 6 patentably distinguishes over the references relied upon by the Examiner. Motomura does not cure the deficiencies noted above with respect to Yamakita and Sato; more particularly, Motomura does not teach, suggest or disclose **a liquid crystal display, comprising . . . spacers positioned between the upper substrate and the lower substrate, the spacers in a pixel region determining a gap between the upper and lower substrates; wherein the alignment of the liquid crystal layer is OCB type, and the spacers are black**, as in claim 6. Accordingly, it is respectfully requested that the rejections of claims 8 and 9 be withdrawn.

Claim 11

On page 6 of the Office action, the Examiner rejected claim 11 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Yamakita in view of Sato and in further view of Bos (U.S. Patent No. 5,410,402). The Examiner states that Yamakita and Sato disclose all elements of claim 11, except that a compensation layer has a smaller dispersion of birefringence than a liquid crystal layer of claim 11, which the Examiner further states is taught mainly at column 7, lines 46-65 of Bos. Applicants traverse the rejection with respect to this claim.

Claim 11 depends from independent claim 6 and is patentable for at least the reasons discussed above that independent claim 6 patentably distinguishes over the references relied upon by the Examiner. Bos does not cure the deficiencies noted above with respect to Yamakita and Sato; more particularly, Motomura does not teach, suggest or disclose **a liquid crystal**

display, comprising . . . spacers positioned between the upper substrate and the lower substrate, the spacers in a pixel region determining a gap between the upper and lower substrates; wherein the alignment of the liquid crystal layer is OCB type, and the spacers are black. Accordingly, it is respectfully requested that the rejections of claim 11 be withdrawn.

Claims 12-13, 16, 18-19 and 22

On pages 6 and 7 of the Office action, the Examiner rejected claims 12, 13, 16, 18, 19 and 22 under 35 U.S.C. § 103(a) as being unpatentable over Yamakita in view of Sato and further in view of Watanabe (U.S. Patent No. 5,617,228). The Examiner states that Yamakita and Sato disclose all elements of claims 12, 13, 16, 18, 19 and 22, except for spacers positioned between upper and lower substrates and the number of spacers is less than 90 in one square millimeter, which the Examiner further states is taught mainly at column 13, line 65 – column 14, line 3 of Watanabe. Applicants traverse the rejection with respect to these claims. As discussed above, Yamakita neither teaches nor suggests **a liquid crystal display, comprising . . . the alignment of the liquid crystal layer is OCB type; and black spacers positioned between the upper substrate and the lower substrate, the spacers in a pixel region determining a gap between the upper and lower substrates,** as claimed in amended independent claims 12 and 18.

Also as discussed above, Sato fails to teach or suggest **a liquid crystal display, comprising . . . the alignment of the liquid crystal layer is OCB type; and black spacers positioned between the upper substrate and the lower substrate, the spacers in a pixel region determining a gap between the upper and lower substrates,** as claimed in amended independent claims 12 and 18.

Watanabe is directed to a polymer-dispersed liquid crystal display device and method to set liquid crystal layer thickness in association with driving voltage. (See Abstract).

Watanabe neither teaches nor suggests **a liquid crystal display, comprising . . . the alignment of the liquid crystal layer is OCB type; and black spacers positioned between the upper substrate and the lower substrate, the spacers in a pixel region determining a gap between the upper and lower substrates,** as claimed in amended independent claims 12 and 18.

Independent claims 12 and 18 of the present application patentably distinguishes over the combination of Yamakita and Sato for at least the reasons discussed above with respect to claims 1 and 6. Watanabe does not cure the deficiencies noted above with respect to Yamakita and Sato.

Therefore, for at least the reasons discussed above, independent claims 12 and 18 of the present application patentably distinguishes over the combination of Yamakita, Sato and Watanabe. Accordingly, it is respectfully requested that the rejection of independent claims 12 and 18 be withdrawn.

Claims 13 and 16 depend from independent claim 12 while claims 19 and 22, and are dependent on independent claim 18, both independent claims are allowable for at least the reasons discussed above. Accordingly, it is respectfully requested that the rejections of claims 13, 16, 19 and 22 be withdrawn.

Claims 14, 15, 20 and 21

On page 6 of the Office action, the Examiner rejected claims 14, 15, 20 and 21 under 35 U.S.C. § 103(a) as being unpatentable over Yamakita in view of Sato and further in view of

Motomura. The Examiner states that Yamakita and Sato disclose all of the elements of the abovementioned claims, except the angle of the slow axis of the compensation film and the transmittance of the polarizer is about 45 degrees of claims 14, 15, 20 and 21, which the Examiner further states is taught mainly in Motomura at column 15, lines 10-15. Applicants traverse the rejection with respect to these claims.

Claims 14 and 15 depend from independent claim 12 and are patentable for at least the reasons discussed above that independent claim 12 patentably distinguishes over the references relied upon by the Examiner. Claims 20 and 21 depend from independent claim 18 and are patentable for at least the reasons discussed above that independent claim 18 patentably distinguishes over the references relied upon by the Examiner. Motomura does not cure the deficiencies noted above with respect to Yamakita and Sato; more particularly, Motomura does not teach, suggest or disclose **a liquid crystal display, comprising . . . the alignment of the liquid crystal layer is OCB type; and black spacers positioned between the upper substrate and the lower substrate, the spacers in a pixel region determining a gap between the upper and lower substrates.** Accordingly, it is respectfully requested that the rejections of claims 14, 15, 20 and 21 be withdrawn.

Claims 17 and 23

On page 8 of the Office Action, the Examiner has rejected claims 17 and 23 under 35 U.S.C. § 103(a) as being unpatentable over Yamakita in view of Sato and Watanabe and further in view of Bos. The Examiner states that Yamakita et al and Sato disclose all elements of claims 17 and 23, except that a compensation layer has a smaller dispersion of birefringence than a liquid crystal layer of claims 17 and 23, which the Examiner further states is taught mainly at column 7, lines 46-65 of Bos. Applicants traverse the rejection with respect to these claims. Claim 17 depends from independent claim 12 and claim 23 depends from independent claim 18, both of which are patentable for at least the reasons discussed above that independent claims 12 and 18 patentably distinguish over the references relied upon by the Examiner. Neither Watanabe nor Bos cure the deficiencies noted above with respect to Yamakita in view of Sato. Accordingly, it is respectfully requested that the rejections of claims 17 and 23 be withdrawn.

For the above stated reasons, it is respectfully submitted that the final rejection of at least claims 1-23 is in error and that the same are allowable over the art of record. The fee set forth in 37 CFR 41.20(b)(1) is enclosed herewith. However, if any fees are due with respect to this submission, please charge them to Deposit Account No. 06-1130 maintained by Applicants' attorneys.

Respectfully submitted,

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